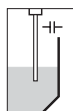


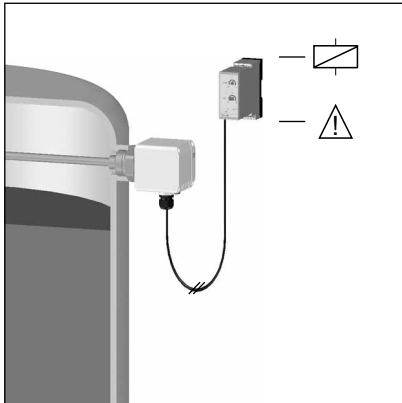
## Level measurement/Switching – Capacitive

<b>Contents</b>	<b>Page</b>
Application examples .....	87
Electrodes EL .....	88 ff.
Accessory: Dimensions .....	115
Electrodes EK .....	116 ff.
Accessory: General .....	122
Oscillators .....	123
Compact level switches VEGACAP .....	124 ff.



## Application examples: Capacitive level measurement

### Switching

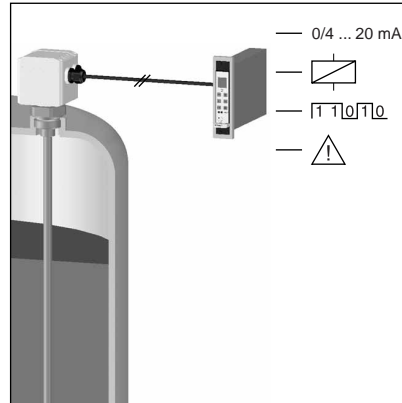


Electrode with level switch

A measuring system consists of:

- one electrode
- one oscillator
- one VEGATOR level switch or one VEGALOG processing system

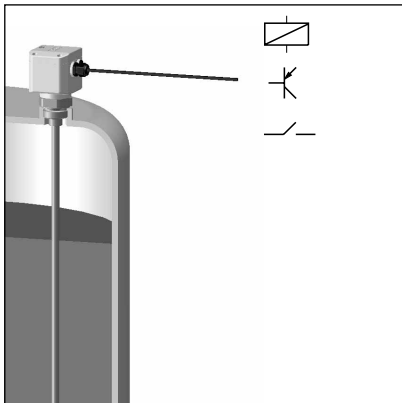
### Continuous measurement



Electrode with signal conditioning instrument

A measuring system consists of:

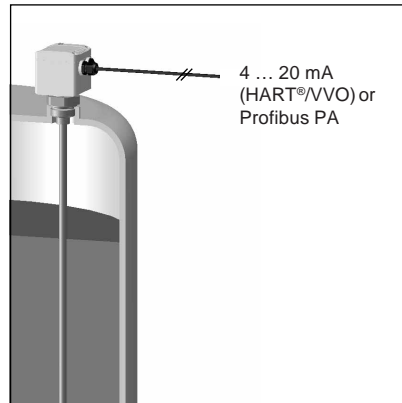
- one electrode
- one oscillator
- one VEGAMET signal conditioning instrument or one VEGALOG processing system



VEGACAP compact level switch

A measuring system consists of:

- one VEGACAP compact level switch with integrated oscillator

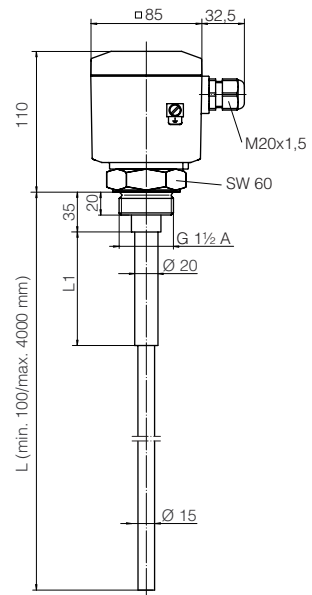


Electrode as compact instrument

A measuring system consists of:

- one capacitive electrode EL or EK with integrated electronics 4 ... 20 mA with or without HART®, VVO communication
- one capacitive electrode EL or EK with integrated electronics for connection to Profibus PA





L1 with PP = 100 mm  
L1 with PTFE = 50 mm

Further dimensions see page 115

 **SPEED** up to 1900 mm length



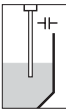
### Approval

- .X** without
- EX0.A** ATEX II 1G,1/2G EEx ia IIC T6 + WHG
- EXS.K** ATEX II 1/2D IP65T
- .M** Ship approval

### Process connection/Material

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

Continuation see next page



**Total length L in mm**

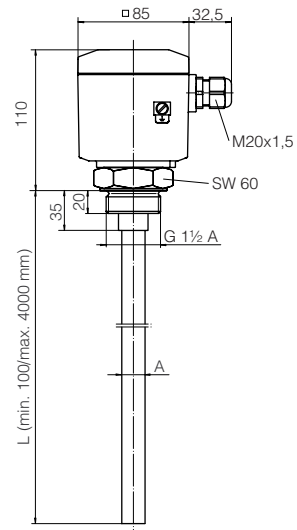
per 100 mm of steel  
per 100 mm of 1.4571

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571  
per 100 mm of 1.4571(narrow)

Electrode length (L):  mm (min. 100 mm, max. 4000 mm)

- **Approval "EXS.X"**: only in conjunction with housing "M"
- **Process connections "FCV", "FDV", "FEV", "AGV", "ACV", "AHV", "AEV", "TBV", "TCV" and "RCV"**: Delivery time more than 5 working days
- **Insulation "B"**: not in conjunction with adapters
- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators**: Description see page 123
- **Oscillators E15(Ex), E17(Ex) and E18(Ex)**: For connection to VEGA signal conditioning instrument VEGATOR or VEGAMET
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- **Overvoltage arrester**: can be retrofitted for housing, see page 122
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



Further dimensions see page 115

## **SPEED** up to 1900 mm length

Insulation		A outer- $\varnothing$
PE	2.0 mm	20 mm
PTFE	2.0 mm	20 mm
PTFE	3.2 mm	16 mm
PFA	2.0 mm	20 mm



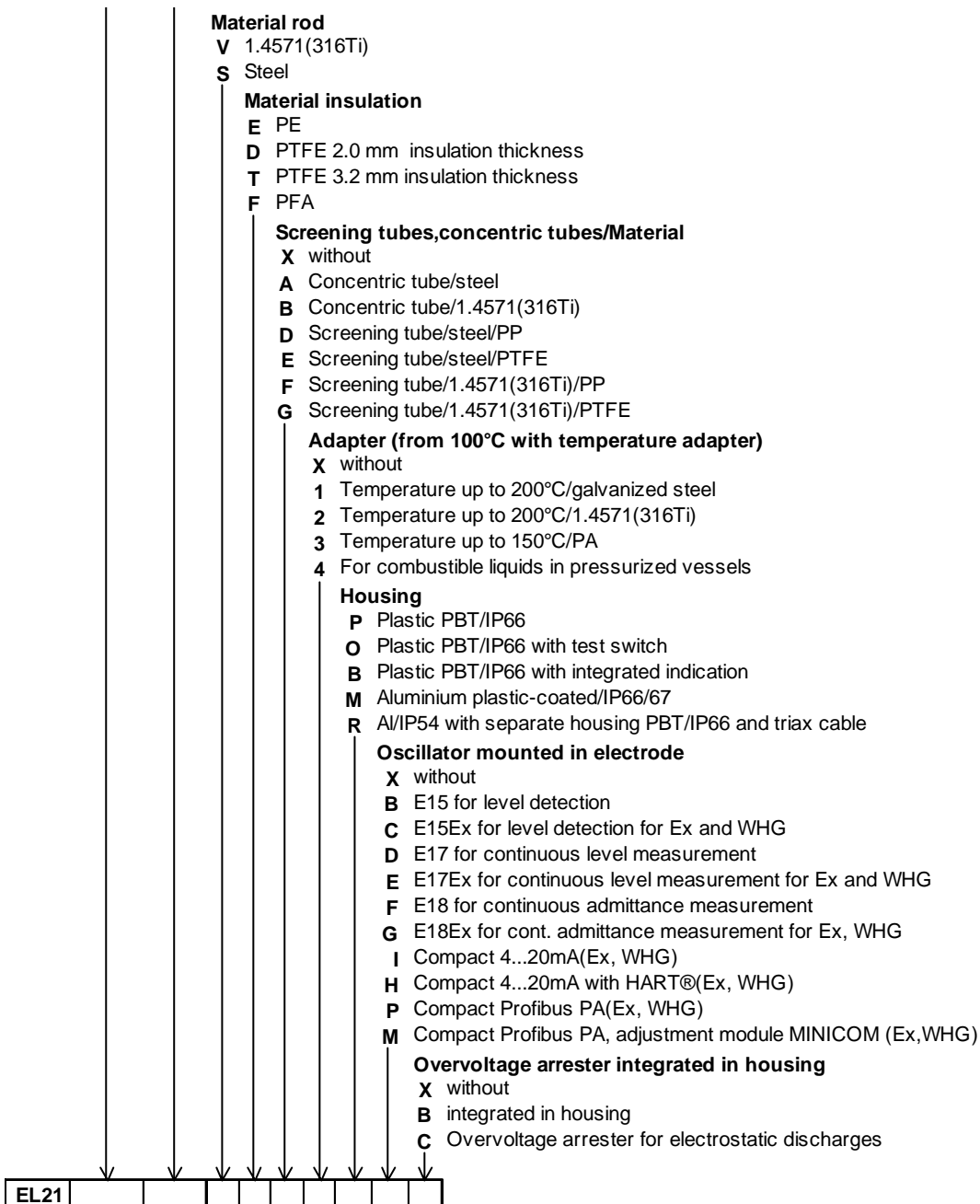
### Approval

- .X** without
- EX0.A** ATEX II 1G, 1/2G EEx ia IIC T6 + WHG
- .M** Ship approval

#### Process connection/Material

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- PCV** Flange DN50PN40/StSt PTFE-plated
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

Continuation see next page



**Total length L in mm**

- per 100 mm of steel, PE fully insulated
- per 100 mm of 1.4571, PE fully insulated
- per 100 mm of steel, PTFE fully insulated
- per 100 mm of 1.4571, PTFE fully insulated
- per 100 mm of steel, PFA fully insulated
- per 100 mm of 1.4571, PFA fully insulated
- per 100 mm of steel
- per 100 mm of 1.4571

**Tube length**

- per 100 mm of steel
- per 100 mm of 1.4571

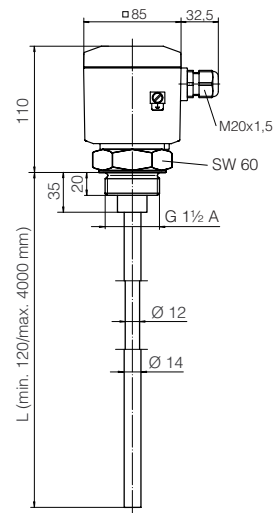
Electrode length (L):  mm (min. 100 mm, max. 4000 mm)

- **Process connections "FCV", "FDV", "FEV", "AGV", "ACV", "AHV", "AEV", "TBV", "TCV" and "RCV"**: Delivery time more than 5 working days
- Plated flange not in conjunction with insulation "E", "F" as well as concentric tube, screening tube and adapter "1" and "2"
- **Material Insulation "E"**: not in conjunction with adapters
- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators**: Description see page 123
- **Overtoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

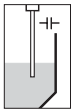
## EL 24

**Fully insulated admittance electrode in rod version**  
For level measurement of adhesive, conductive liquids

- easy mounting
- exact measurement even with strong buildup
- high linearity
- measurement nearly along the complete electrode length



Further dimensions see page 115





**Approval**

.X without

**EX0.A** ATEX II 1G, 1/2G EEx ia IIC T6 + WHG

.M Ship approval

**Process connection/Material**

**GBS** Thread G1½A/steel

**GBV** Thread G1½A/1.4571(316Ti)

**GBT** Thread G1½A/steel with adapter/PTFE

**TCV** Tri-Clamp 2"/StSt

**RCV** Bolting DN50/StSt

**Material rod**

**V** 1.4571(316Ti)

**Material insulation**

**A** FEP

**Screening tubes, concentric tubes/Material**

**X** without

**Adapter (from 100°C with temperature adapter)**

**X** without

**3** Temperature up to 150°C/PA

**Housing**

**P** Plastic PBT/IP66

**O** Plastic PBT/IP66 with test switch

**B** Plastic PBT/IP66 with integrated indication

**M** Aluminium plastic-coated/IP66/67

**R** Al/IP54 with separate housing PBT/IP66 and triax cable

**Oscillator mounted in electrode**

**X** without

**F** E18 for continuous admittance measurement

**G** E18Ex for cont. admittance measurement for Ex, WHG

**I** Compact 4...20mA(Ex, WHG)

**H** Compact 4...20mA with HART®(Ex, WHG)

**P** Compact Profibus PA(Ex, WHG)

**M** Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overvoltage arrester integrated in housing**

**X** without

**B** integrated in housing

**C** Overvoltage arrester for electrostatic discharges

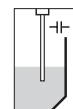


**Total length L in mm**

per 100 mm of 1.4571, FEP fully insulated

Electrode length (L):  mm (min. 120 mm, max. 4000 mm)

- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

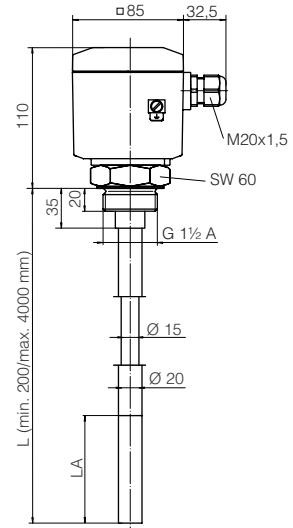


**EL 26**

**Fully insulated admittance electrode in rod version**

Preferably for level detection of adhesive, conductive liquids

- easy mounting
- exact switching point even with strong buildup
- easy setup
- rugged and maintenance-free



LA = active length (standard 100 mm)

Further dimensions see page 115

**Approval**

- .X without
- EX0.A** ATEX II 1G, 1/2G EEx ia IIC T6 + WHG
- .M Ship approval

**Process connection/Material**

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- FCV** Flange DN50PN40 Form C/StSt
- PCV** Flange DN50PN40/StSt PTFE-plated
- FDV** Flange DN80PN40 Form C/StSt

**Material rod**

- V** 1.4571(316Ti)
- S** Steel

**Material insulation**

- T** PTFE
- F** PFA

**Screening tubes, concentric tubes/Material**

- X** without

**Adapter (from 100°C with temperature adapter)**

- X** without
- 1** Temperature up to 200°C/galvanized steel
- 2** Temperature up to 200°C/1.4571(316Ti)
- 3** Temperature up to 150°C/PA

**Housing**

- P** Plastic PBT/IP66
- O** Plastic PBT/IP66 with test switch
- M** Aluminium plastic-coated/IP66/67
- R** Al/IP54 with separate housing PBT/IP66 and triax cable

**Oscillator mounted in electrode**

- X** without
- F** E18 for level detection
- G** E18Ex for level detection for Ex and WHG

**Overvoltage arrester integrated in housing**

- X** without
- C** Overvoltage arrester for electrostatic discharges



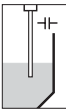
**Total length L in mm**

- per 100 mm of steel, PTFE fully insulated
- per 100 mm of 1.4571, PTFE fully insulated
- per 100 mm of steel, PFA fully insulated
- per 100 mm of 1.4571, PFA fully insulated

Electrode length (L):  mm (min. 200 mm, max. 4000 mm)

Active length (LA):  mm (standard 100 mm)

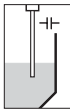
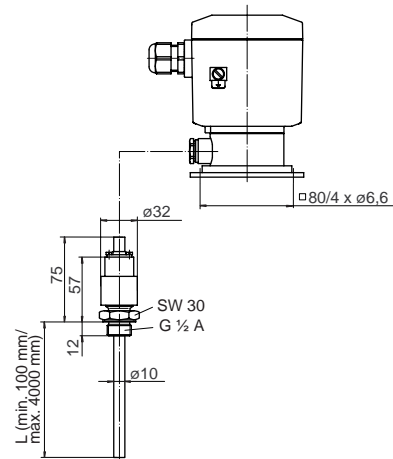
- Further process connections on request
- Plated flange not in conjunction with insulation "F" as well as not with adapters "1" and "2"
- **Oscillators:** Description see page 123
- Further accessory see page 122



**EL 28**

**Capacitive, fully insulated electrode with BNC plug connection**  
Preferably for measurement of liquids

- very small mounting dimensions
- easy mounting
- high functionality
- separate electronics housing
- measurement nearly along the complete electrode length



**Approval**

- .X without
- EX.X CENELEC EEx ia IIC
- .M Ship approval

**Process connection/Material**  
GTV Thread G 1/2 A/1.4571(316Ti)

**Material rod**  
V 1.4571(316Ti)

**Material insulation**  
T PTFE

**Screening tubes, concentric tubes**

X without

**Adapter**

X without

**Housing for oscillator**

X without

P Plastic PBT/IP66 w. triax cable, BNC-plug

**Oscillator integrated in separate housing**

X without

B E15 for level detection

C E15Ex for level detection for Ex and WHG

D E17 for continuous level measurement

E E17Ex for continuous level measurement for Ex and WHG

F E18 for continuous admittance measurement

G E18Ex for cont. admittance measurement for Ex, WHG

I Compact 4...20mA(Ex, WHG)

H Compact 4...20mA with HART®(Ex, WHG)

P Compact Profibus PA(Ex, WHG)

M Compact Profibus PA, adjustment module MINICOM (Ex, WHG)

**Overvoltage arrester**

X without

B integrated in housing



**Rod length in mm**  
per 100 mm

**Triax cable in m**  
per m (from 2 m)

Electrode length (L):  mm (min. 100 mm, max. 4000 mm), others on request

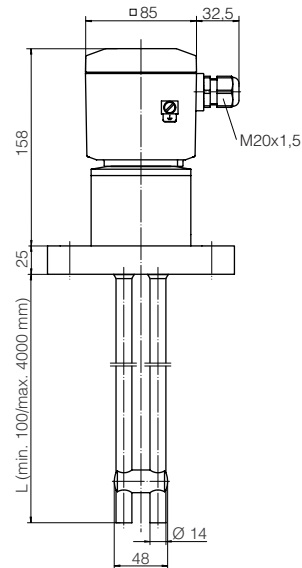
- **Oscillators:** Description see page 123
- **Overvoltage arrester "B":** only in conjunction with electronics "I" and "H"
- Further Profibus accessory see chapter "Accessory"

## EL 29

### Fully insulated admittance double rod electrode

Preferably for measurement of liquids in non-conductive vessels

- ideal for mounting into plastic vessels
- high linearity
- rugged and maintenance-free
- insensitive to crystallisation and buildup



#### Approval

- .X without
- EX.A CENELEC EEx ia IIC, WHG

#### Process connection/Material

- FCB Flange DN50/PP
- FCC Flange DN50/PVC
- FCT Flange DN50/PTFE
- FDB Flange DN80/PP
- FDC Flange DN80/PVC
- FDT Flange DN80/PTFE
- FFB Flange DN100/PP
- FFC Flange DN100/PVC
- FFT Flange DN100/PTFE
- AIT Flange 2"150lb/PTFE
- AKT Flange 2"300lb/PTFE

#### Housing

- P Plastic PBT/IP66
- O Plastic PBT/IP66 with test switch
- B Plastic PBT/IP66 with integrated indication
- M Aluminium plastic-coated/IP66/67

#### Oscillator mounted in electrode

- X without
- B E15 for level detection
- C E15Ex for level detection for Ex and WHG
- F E18 for continuous admittance measurement
- G E18Ex for cont. admittance measurement for Ex, WHG
- I Compact 4...20mA(Ex, WHG)
- H Compact 4...20mA with HART@(Ex, WHG)
- P Compact Profibus PA(Ex, WHG)
- M Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

#### Overvoltage arrester

- X without
- B integrated in housing

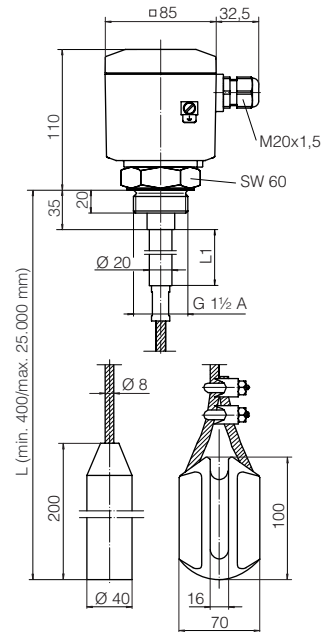


#### Length in mm

per 100 mm of 1.4571 FEP fully insulated (2 rods)

Electrode length (L):  mm (min. 120 mm, max. 3000 mm), others on request

- **Process connections:** Holes on DIN flanges like PN 16
- **Housing "B":** only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators:** Description see page 123
- **Overvoltage arrester "B":** only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



Further dimensions see page 115



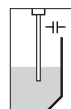
## Approval

- .X without
- EX0.A** ATEX II 1G, 1/2G EEx ia IIC T6 + WHG
- EXS.K** ATEX II 1/2D IP65T
- .M Ship approval

### Process connection/Material

- GBA** Thread G 1 1/2 A/Aluminium
- GBS** Thread G 1 1/2 A/steel
- GBV** Thread G 1 1/2 A/1.4571(316Ti)
- NBS** Thread 1 1/2 NPT/steel
- NBV** Thread 1 1/2 NPT/StSt
- TBV** Tri-Clamp 1 1/2"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

Continuation see next page



**Total length L in mm**

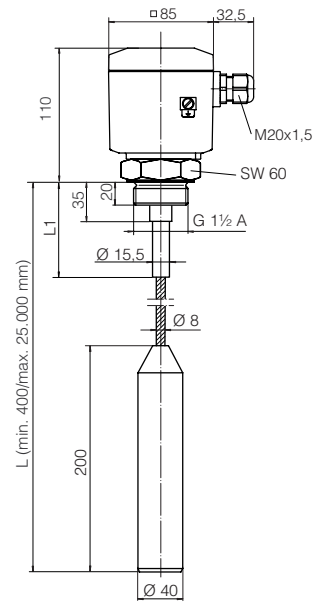
per 1000 mm of steel  
per 1000 mm of 1.4571

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm)

- **Approval "EXS.X"**: only in conjunction with housing "M"
- **Insulation "B"**: not in conjunction with adapters
- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



Further dimensions see page 115



## Approval

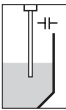
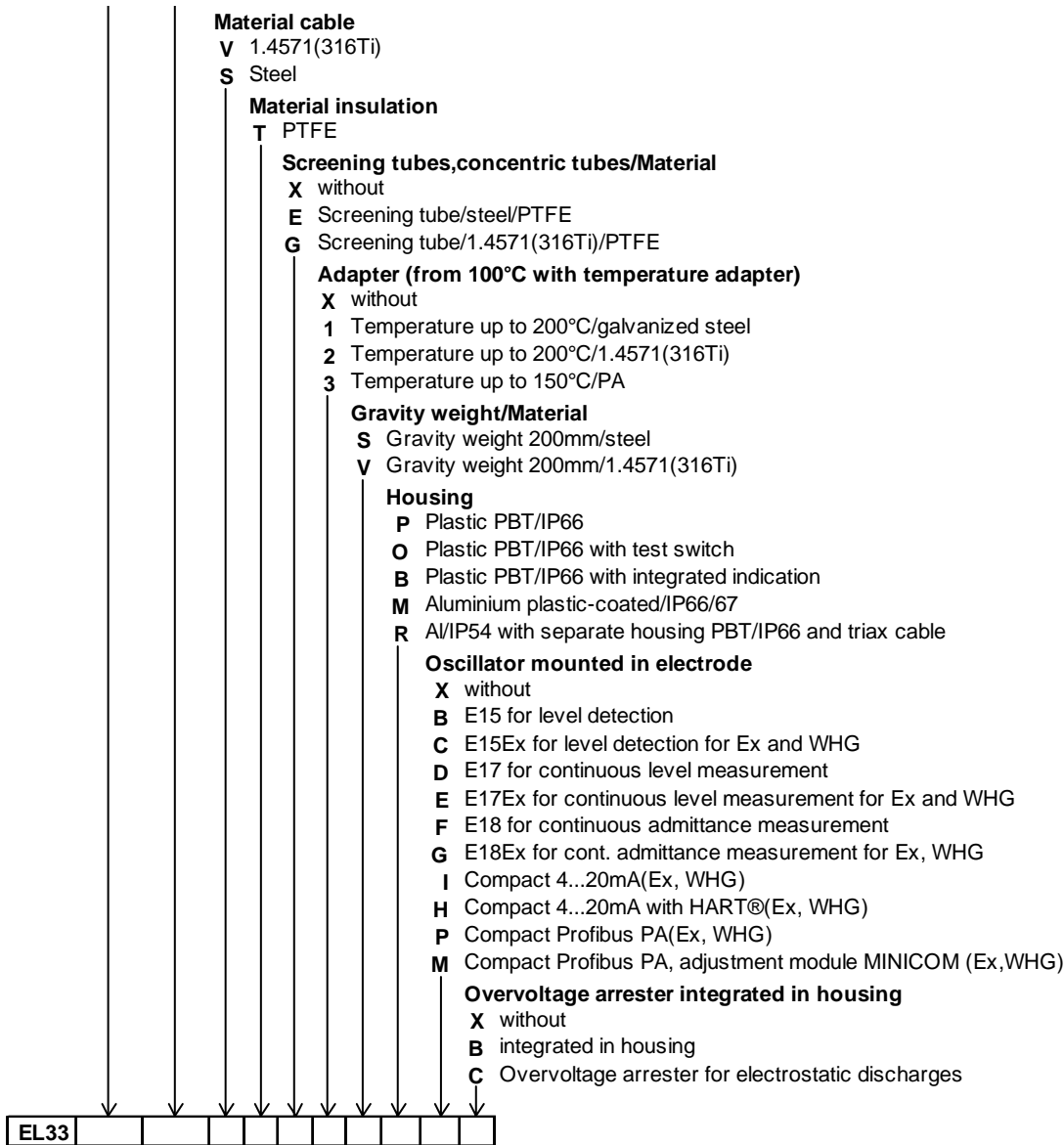
- .X without
- EX.A** CENELEC EEx ia IIC, WHG
- .M** Ship approval

### Process connection/Material

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

Continuation see next page





**Total length L in mm**

per 1000 mm of steel  
per 1000 mm of 1.4571

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

**Insulation length in mm**

per 100 mm of PTFE

Electrode length (L):  mm (min. 400 mm, max. 25000 mm), others on request

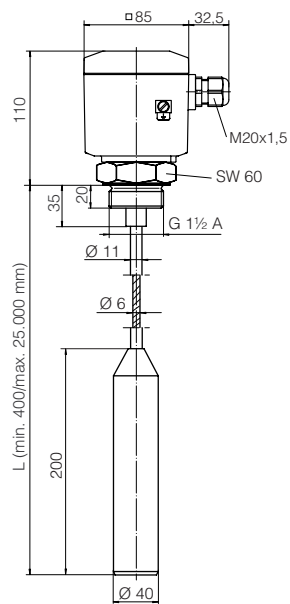
Insulation length (L1):  mm

- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Housing**: Drawing see page 115
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

**EL 34****Capacitive, partly insulated cable electrode with selectable insulation length**

Preferably for level detection in solids

- easy mounting
- insensitive to condensation
- rugged and maintenance-free
- electrode can be shortened



Further dimensions see page 115

**Approval**

- .X without
- EX.X CENELEC EEx ia IIC
- .M Ship approval

**Process connection/Material**

- GBA Thread G1½A/Aluminium
- GBS Thread G1½A/steel
- GBV Thread G1½A/1.4571(316Ti)
- NBV Thread 1½NPT/StSt

**Material cable**

- S Steel

**Material insulation**

- E PE/PA 12

**Screening tubes, concentric tubes/Material/Closing cone**

- X without
- D Screening tube/steel/PP
- F Screening tube/1.4571(316Ti)/PP

**Adapter**

- X without

**Gravity weight/Material**

- S Gravity weight 200mm/steel
- V Gravity weight 200mm/1.4571(316Ti)
- A Gravity weight 200mm/Aluminium

**Housing**

- P Plastic PBT/IP66
- O Plastic PBT/IP66 with test switch
- M Aluminium plastic-coated/IP66/67

**Oscillator mounted in electrode**

- X without
- B E15 for level detection
- C E15Ex for level detection for Ex and WHG
- F E18 for continuous admittance measurement

**Overvoltage arrester integrated in housing**

- X without
- B integrated in housing
- C Overvoltage arrester for electrostatic discharges



**Total length L in mm**

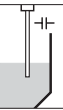
per 1000 mm of steel, PE/PA12 fully insulated

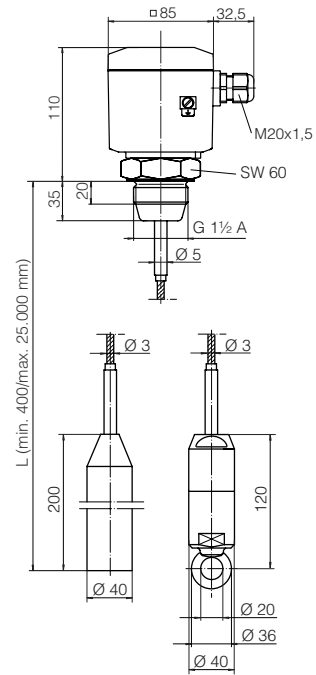
**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm), others on request

- Further process connections on request
- **Oscillators:** Description see page 123
- Further accessory see page 122 and chapter "Accessory"





Further dimensions see page 115



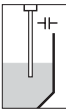
## Approval

- .X without
- EX0.A** ATEX II 1G, 1/2G EEx ia IIC T6 + WHG
- .M Ship approval

### Process connection/Material

- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571 (316Ti)
- GBT** Thread G1½A/steel with adapter/PTFE
- GBP** Thread G1½A/steel with adapter/PP
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- FCV** Flange DN50PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt

Continuation see next page



**Total length L in mm**

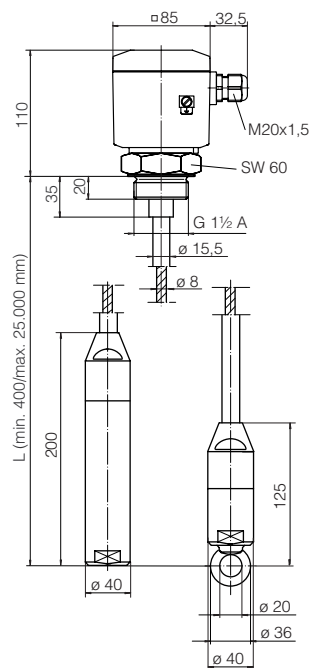
per 1000 mm of steel, PTFE fully insulated  
per 1000 mm of 1.4571, PTFE fully insulated

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm), others on request

- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



Further dimensions see page 115



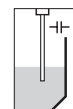
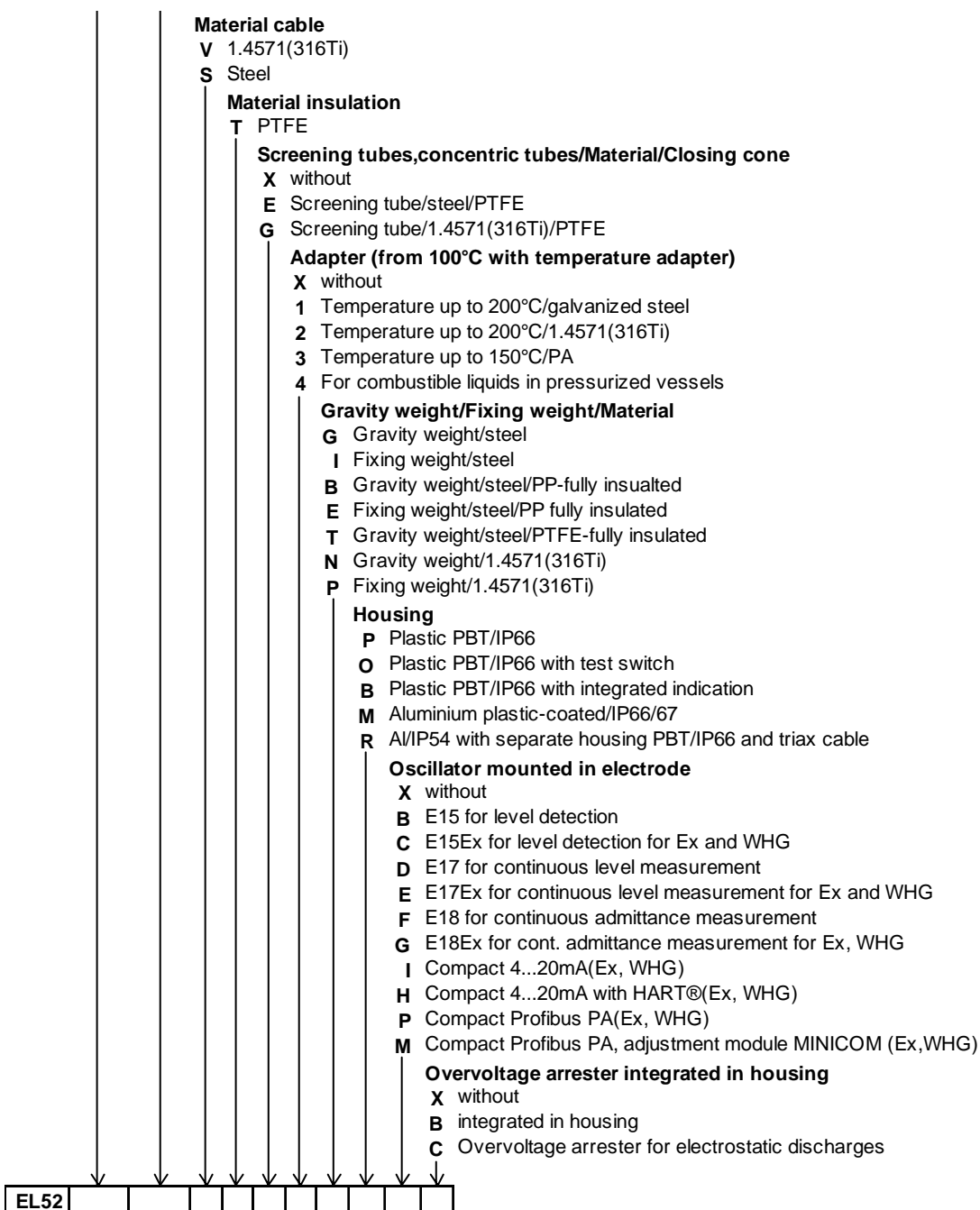
### Approval

- .X without
- EX.X CENELEC EEx ia IIC
- .M Ship approval

### Process connection/Material

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GBT** Thread G1½A/steel with adapter/PTFE
- GBP** Thread G1½A/steel with adapter/PP
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TCV** Tri-Clamp 2"/StSt
- AGV** Flange 2"150lb ANSI/StSt

Continuation see next page



**Total length L in mm**

per 100 mm of steel, PTFE fully insulated  
per 100 mm of 1.4571, PTFE fully insulated

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm), others on request

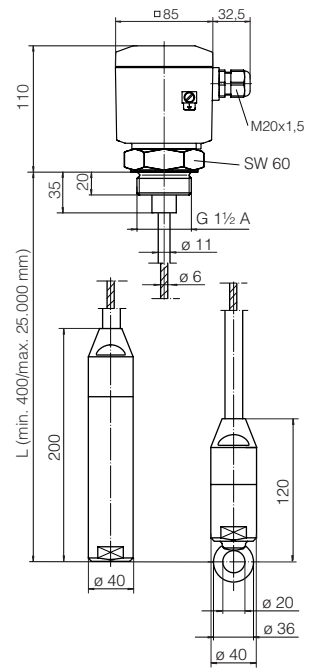
- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

**EL 53**

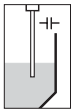
**Capacitive, PE/PA12 fully insulated cable electrode**  
Preferably for measurement of solids

- easy mounting
- high functionality
- insensitive to condensation
- rugged and maintenance-free

Process temperature : -40...80°C



Further dimensions see page 115





**Approval**

- .X without
- EX.X CENELEC EEx ia IIC
- .M Ship approval

**Process connection/Material**

- GBA** Thread G 1½A/Aluminium
- GBS** Thread G 1½A/steel
- GBV** Thread G 1½A/1.4571(316Ti)
- NBV** Thread 1½NPT/StSt

**Material cable**

- S** Steel

**Material insulation**

- E** PE/PA 12

**Screening tubes,concentric tubes/Material/Closing cone**

- X** without
- D** Screening tube/steel/PP
- F** Screening tube/1.4571(316Ti)/PP

**Adapter**

- X** without

**Gravity weight/Fixing weight/Material**

- G** Gravity weight/steel
- I** Fixing weight/steel
- N** Gravity weight/1.4571(316Ti)
- P** Fixing weight/1.4571(316Ti)

**Housing**

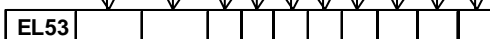
- P** Plastic PBT/IP66
- O** Plastic PBT/IP66 with test switch
- B** Plastic PBT/IP66 with integrated indication
- M** Aluminium plastic-coated/IP66/67

**Oscillator mounted in electrode**

- X** without
- B** E15 for level detection
- C** E15Ex for level detection for Ex and WHG
- D** E17 for continuous level measurement
- E** E17Ex for continuous level measurement for Ex and WHG
- F** E18 for continuous admittance measurement
- G** E18Ex for cont. admittance measurement for Ex, WHG
- I** Compact 4...20mA(Ex, WHG)
- H** Compact 4...20mA with HART®(Ex, WHG)
- P** Compact Profibus PA(Ex, WHG)
- M** Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overvoltage arrester integrated in housing**

- X** without
- B** integrated in housing
- C** Overvoltage arrester for electrostatic discharges



**Total length L in mm**

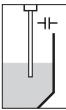
per 1000 mm of steel, PE/PA12-fully insulated

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm), others on request

- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Housing**: Drawing see page 115
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



**EL 60**

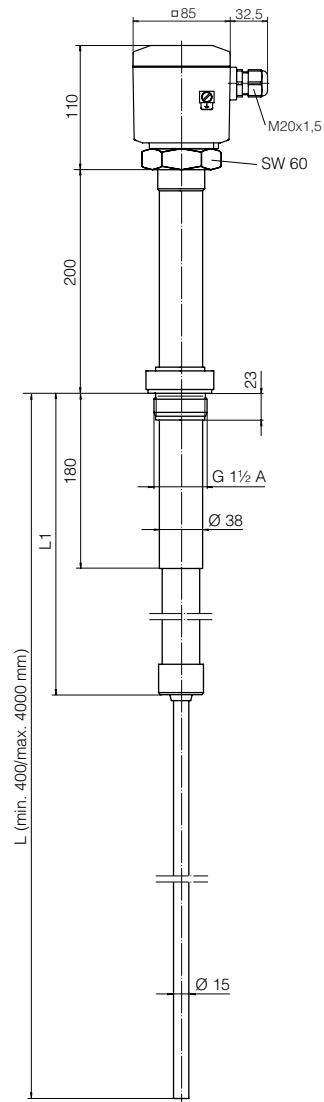
**Capacitive, partly insulated high temperature electrode in rod version**

For measurement of non-conductive solids

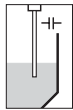
- easy mounting
- high functionality
- rugged and maintenance-free
- electrode can be shortened

Process temperature : -50...300°C (with separate housing  
up to 400°C)

Process pressure : -1...16 bar ( -100...1600 kPa)



L1 supporting tube (300)  
Further dimensions see page 115



**Approval**

- .X without
- EX.X CENELEC EEx ia IIC
- EXS.X StEx Zone 10
- EXS.K StEx Zone 20

**Process connection/Material**

- GBS Thread G 1½A/steel
- GBV Thread G 1½A/1.4571(316Ti)
- NBS Thread 1½NPT/steel
- NBV Thread 1½NPT/1.4571(316Ti)

**Material rod and supporting tube**

- V 1.4571(316Ti)
- S Steel

**Insulation**

- X without

**Screening tubes, concentric tubes**

- X without

**Adapter**

- X without

**Housing**

- P Plastic PBT/IP66
- O Plastic PBT/IP66 with test switch
- B Plastic PBT/IP66 with integrated indication
- M Aluminium plastic-coated/IP66/67
- R Al/IP54 with separate housing PBT/IP66 and triax cable

**Oscillator mounted in electrode**

- X without
- B E15 for level detection
- C E15Ex for level detection for Ex and WHG
- D E17 for continuous level measurement
- E E17Ex for continuous level measurement for Ex and WHG
- F E18 for continuous admittance measurement
- G E18Ex for cont. admittance measurement for Ex, WHG
- I Compact 4...20mA(Ex, WHG)
- H Compact 4...20mA with HART®(Ex, WHG)
- P Compact Profibus PA(Ex, WHG)
- M Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overvoltage arrester integrated in housing**

- X without
- B integrated in housing
- C Overvoltage arrester for electrostatic discharges



**Total length L in mm**

- per 100 mm of steel
- per 100 mm of 1.4571

**Supporting tube length mm**

- per 100 mm of steel
- per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 4000 mm), others on request

Supporting tube length (L1):  mm (min. 200 mm)

- **Approval "EXS.X"**: only in conjunction with housing "M"
- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- In conjunction with housing "P", "O", "M": up to +300°C
- In conjunction with housing "R": up to +400°C
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



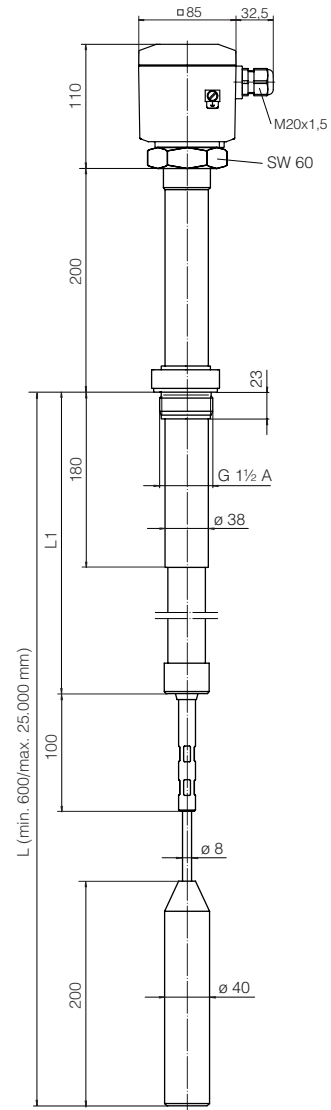
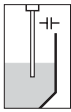
**EL 61**

**Capacitive, partly insulated high temperature electrode in cable version**  
For measurement of non-conductive solids

- easy mounting
- high functionality
- rugged and maintenance-free
- electrode can be shortened

Process temperature : -50...300°C (with separate housing  
up to 400°C)

Process pressure : -1 ... 16 bar (-100...1600 kPa)



L1 supporting tube (300)  
Further dimensions see page 115

**Approval**

- .X** without
- EX.X** CENELEC EEx ia IIC
- EXS.X** StEx Zone 10
- EXS.K** StEx Zone 20

**Process connection/Material**

- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/1.4571(316Ti)

**Material cable and supporting tube**

- V** 1.4571(316Ti)
- S** Steel

**Insulation**

- X** without

**Screening tubes,concentric tubes**

- X** without

**Adapter**

- X** without

**Gravity weight**

- S** Gravity weight 200mm/steel
- V** Gravity weight 200mm/1.4571(316Ti)

**Housing**

- P** Plastic PBT/IP66
- O** Plastic PBT/IP66 with test switch
- B** Plastic PBT/IP66 with integrated indication
- M** Aluminium plastic-coated/IP66/67
- R** AI/IP54 with separate housing PBT/IP66 and triax cable

**Oscillator mounted in electrode**

- X** without
- B** E15 for level detection
- C** E15Ex for level detection for Ex and WHG
- D** E17 for continuous level measurement
- E** E17Ex for continuous level measurement for Ex and WHG
- F** E18 for continuous admittance measurement
- G** E18Ex for cont. admittance measurement for Ex, WHG
- I** Compact 4...20mA(Ex, WHG)
- H** Compact 4...20mA with HART®(Ex, WHG)
- P** Compact Profibus PA(Ex, WHG)
- M** Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overvoltage arrester integrated in housing**

- X** without
- B** integrated in housing
- C** Overvoltage arrester for electrostatic discharges



**Total length L in mm**

- per 1000 mm of steel
- per 1000 mm of 1.4571

**Supporting tube length mm**

- per 100 mm of steel
- per 100 mm of 1.4571

Electrode length (L):  mm (min. 600 mm, max. 25000 mm), others on request

Supporting tube length (L1):  mm (min. 200 mm)

- **Approval "EXS.X"**: only in conjunction with housing "M"
- **Housing "B"**: only in conjunction with electronics Profibus PA "P" and "M"
- **Housing**: Drawing see page 115
- In conjunction with housing "P", "O", "M": up to +300°C
- In conjunction with housing "R": up to +400°C
- **Oscillators**: Description see page 123
- **Overvoltage arrester "B"**: only in conjunction with electronics "I" and "H"
- Further accessory see page 122 and chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

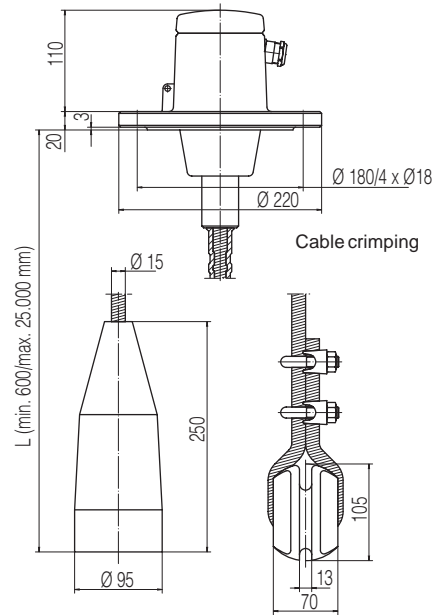


**EL 70**

**Capacitive, partly insulated, heavy cable electrode**  
 For measurement of non-conductive solids

- easy mounting
- high functionality
- very rugged and maintenance-free
- electrode can be shortened

Process temperature : -40 ... 100°C



**Approval**

- .X without
- EXS.X StEx Zone 10
- EXS.K StEx Zone 20

**Process connection/Material**

**FEG** Flange DN100PN10/grey cast

**Material cable**

- V** 1.4571(316Ti)
- S** Steel
- B** of 1.4571(316Ti) w. abrasion prot. of 1.4571 (316Ti)
- A** of steel with abrasion protection of steel

**Material insulation**

**E** PE

**Gravity weight/Fixing insulator**

- X** without, with bush
- I** Fixing insulator of ceramic
- S** Gravity weight ø 95mm/grey cast

**Housing**

**G** of grey cast/IP66

**Oscillator mounted in electrode**

- X** without
- B** E15 for level detection
- C** E15Ex for level detection for Ex and WHG
- D** E17 for continuous level measurement
- E** E17Ex for continuous level measurement for Ex and WHG
- F** E18 for continuous admittance measurement
- G** E18Ex for cont. admittance measurement for Ex, WHG



**Total length L in mm**

- per 1000 mm of steel
- per 1000 mm of 1.4571
- per 1000 mm of steel with steel abrasion protection
- per 1000mm of 1.4571, with abrasion protection of 1.4571

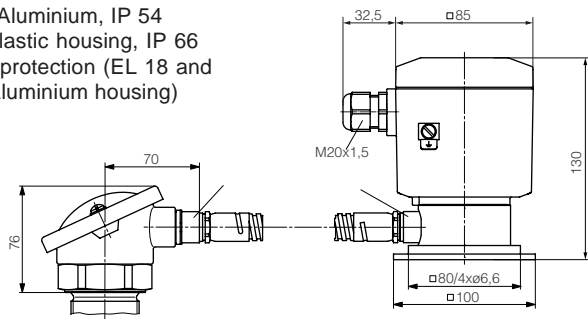
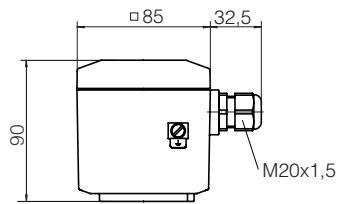
Electrode length (L):  mm (min. 600 mm, max. 25000 mm)

- **Cable with abrasion protection:** only in conjunction with gravity weight "X"

**Housing**

Housing (P or M) of plastic, IP 66 and Aluminium IP 66/IP 67

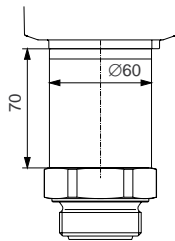
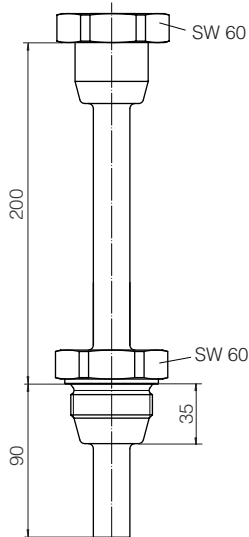
Housing (R) of Aluminium, IP 54 with separate plastic housing, IP 66 and triax cable protection (EL 18 and EL 28 without Aluminium housing)



**Temperature adapters**

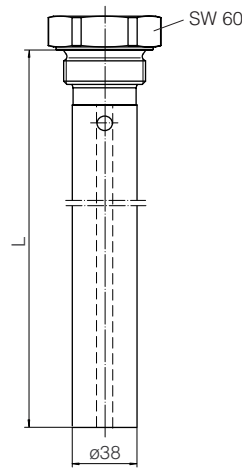
of galvanized steel (1)  
or 1.4571 (2)

of PA (3)



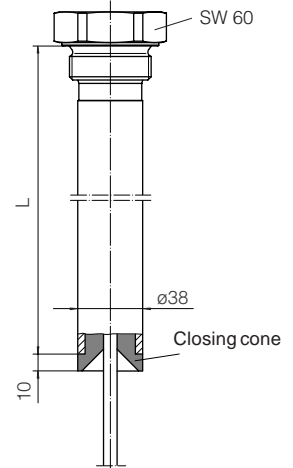
**Concentric tube**

of St or 1.4571

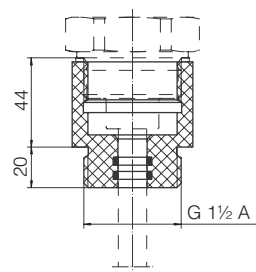


**Screening tube**

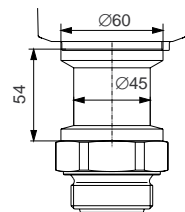
of St or 1.4571 with closing cone of PP or PTFE



**Adapter of PP or PTFE (GBT and GBP)**



**Adapter for combustible liquids in pressurized vessels (4)**

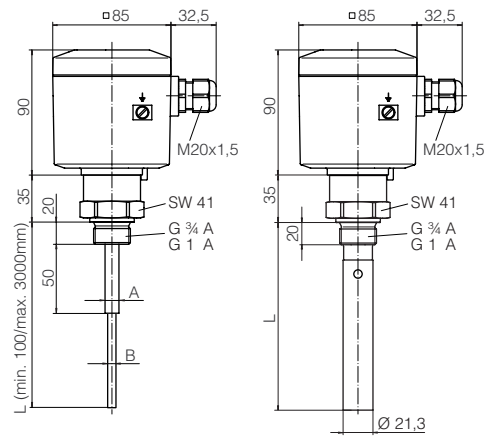


## EK 11

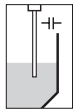
### Capacitive, partly insulated rod electrode

Preferably for the measurement of non-conductive liquids

- easy mounting
- high functionality
- electrode can be shortened



Insulation	A outer-Ø	B rod-Ø
PTFE	10 mm	6 mm
PTFE	14 mm	10 mm
PE	14 mm	10 mm





**Approval**

- .X without
- EX0.A** ATEX II 1G,1/2G EEx ia IIC T6 + WHG
- .M Ship approval
- EX0.U** CSA,Division 1+2,Groups A-G

**Process connection/Material**

- TAB** Thread G $\frac{3}{4}$ A/1.4435(316L)
- TEB** Thread  $\frac{3}{4}$ NPT/1.4435(316L)
- TBB** Thread G1A/1.4435 (316L)
- TFB** Thread 1NPT/1.4435(316L)

**Rod material/Rod- $\varnothing$**

- A** 1.4435(316L)/ $\varnothing$ 6mm
- B** 1.4435(316L)/ $\varnothing$ 10mm

**Material insulation**

- P** PE
- T** PTFE

**Screening tubes,concentric tubes**

- X** without
- H** Concentric tube /1.4435(316L)
- A** Screening tube/1.4435(316L) with connection cone/PTFE

**Adapter (from 100°C with temperature adapter)**

- X** without
- T** for temperature up to 200°C/1.4435(316L)

**Housing**

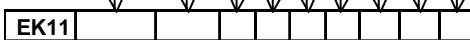
- P** Plastic PBT/IP66
- B** Plastic PBT/IP66 with integrated indication
- M** Aluminium plastic coated/IP66/67

**Electronics**

- X** without
- B** E15 for level detection
- C** E15Ex for level detection for Ex and WHG
- D** E17 for continuous level measurement
- E** E17Ex for continuous level measurement for Ex and WHG
- F** E18 for continuous admittance measurement
- G** E18Ex for cont. admittance measurement for Ex, WHG
- I** Compact 4...20mA(Ex, WHG)
- H** Compact 4...20mA with HART®(Ex, WHG)
- P** Compact Profibus PA(Ex, WHG)
- M** Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overvoltage protection**

- X** without
- B** integrated in housing



**Rod length in mm**

- per 100 mm of 1.4435 rod- $\varnothing$  6 mm
- per 100 mm of 1.4435 rod- $\varnothing$  10 mm

**Tube length in mm**

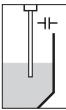
- per 100 mm of 1.4435(316L)

**Insulation length in mm**

- per 100 mm (>100 mm) of PE
- per 100 mm (>50 mm) of PTFE

Electrode length (L):  mm (min. 100 mm, max. 3000 mm)

- **Approval "EX0.U"**: only in conjunction with electronics "I" and "H"
- Approvals "FM", "CSA", ship approvals applied for; Profibus PA (electronics P and M) not WHG
- **Concentric tube, screening tubes**: for liquids
- **Housing "B"**: only in conjunction with electronics "P" and "M" (Profibus PA)
- **Oscillators**: Description see page 123
- Further accessory see chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

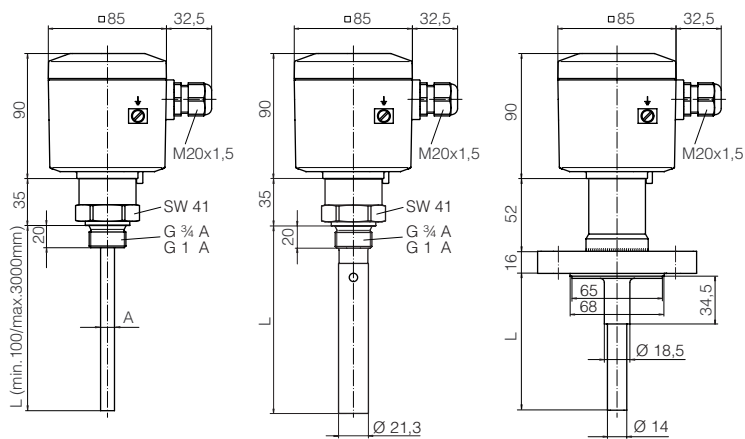
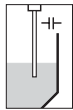


### EK 21

Capacitive, fully insulated rod electrode  
Preferably for the measurement of liquids

- easy mounting
- high functionality
- measurement nearly along the complete electrode length

Insulation	A outer- $\varnothing$	B rod- $\varnothing$
PTFE	10 mm	6 mm
PTFE	14 mm	10 mm
PE	14 mm	10 mm



**Approval**

- .X without
- EX0.A** ATEX II 1G,1/2G EEx ia IIC T6 + WHG
- .M Ship approval
- EX0.U** CSA,Division 1+2,Groups A-G

**Process connection/Material**

- TAB** Thread G $\frac{3}{4}$ A/1.4435(316L)
- TEB** Thread  $\frac{3}{4}$ NPT/1.4435(316L)
- TBB** Thread G1A/1.4435 (316L)
- TFB** Thread 1NPT/1.4435(316L)
- ACF** Flange DN25PN40/steel PTFE-plated

**Rod material/Rod-ø**

- C** Steel/ø10mm
- D** Steel/ø14mm

**Insulation**

- P** PE 2mm
- T** PTFE 2mm

**Screening tubes,concentric tubes**

- X** without
- H** Concentric tube /1.4435(316L)
- A** Screening tube/1.4435(316L) with connection cone/PTFE

**Adapter (from 100°C with temperature adapter)**

- X** without
- T** for temperature up to 200°C/1.4435(316L)

**Housing**

- P** Plastic PBT/IP66
- B** Plastic PBT/IP66 with integrated indication
- M** Aluminium plastic coated/IP66/67

**Electronics**

- X** without
- B** E15 for level detection
- C** E15Ex for level detection for Ex and WHG
- D** E17 for continuous level measurement
- E** E17Ex for continuous level measurement for Ex and WHG
- F** E18 for continuous admittance measurement
- G** E18Ex for cont. admittance measurement for Ex, WHG
- I** Compact 4...20mA(Ex, WHG)
- H** Compact 4...20mA with HART®(Ex, WHG)
- P** Compact Profibus PA(Ex, WHG)
- M** Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overtoltage protection**

- X** without
- B** integrated in housing



**Rod length in mm**

- per 100mm of steel, PE fully insulated, rod-ø 14mm
- per 100mm of steel, PTFE fully insulated, rod-ø 14mm
- per 100mm of steel, PTFE fully insulated, rod-ø 10mm
- per 100mm of steel, PE fully insulated, rod-ø 14mm
- per 100mm of steel, PTFE fully insulated, rod-ø 14mm
- per 100mm of steel, PTFE fully insulated, rod-ø 10mm

**Tube length in mm**

- per 100 mm of 1.4435(316L)

Electrode length (L):  mm (min. 100 mm, max. 3000 mm)

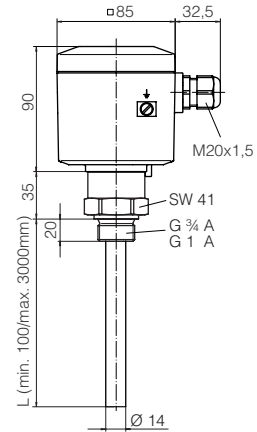
- Approvals "FM", "CSA", ship approvals applied for; Profibus PA (electronics P and M) not WHG
- **Process connection "ACF"**: with rod-ø 14 mm, PTFE, not with temperature adapter
- **Concentric tube, screening tubes**: for liquids
- **Housing "B"**: only in conjunction with electronics "P" and "M" (Profibus PA)
- **Oscillators**: Description see page 123
- Further accessory see chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"



**EK 24**

**Fully insulated admittance electrode in rod version**  
For level measurement of adhesive, conductive liquids

- easy mounting
- exact measurement even with strong buildup
- high linearity
- measurement nearly along the complete electrode length



**Approval**

- .X without
- EX0.A** ATEX II 1G,1/2G EEx ia IIC T6 + WHG
- .M Ship approval
- EX0.U** CSA, Division 1+2, Groups A-G

**Process connection/Material**

- TAB** Thread G3/4A/1.4435(316L)
- TEB** Thread 1/4NPT/1.4435(316L)
- TBB** Thread G1A/1.4435 (316L)
- TFB** Thread 1NPT/1.4435(316L)

**Rod material/Rod-ø**

- V** 1.4571(316Ti)/14mm

**Insulation**

- F** FEP

**Screening tubes, concentric tubes**

- X** without

**Adapter (from 100°C with temperature adapter)**

- X** without

**Housing**

- P** Plastic PBT/IP66
- M** Aluminium plastic coated/IP66/67

**Electronics**

- X** without
- F** E18 for continuous admittance measurement
- G** E18Ex for cont. admittance measurement for Ex, WHG
- I** Compact 4...20mA(Ex, WHG)
- H** Compact 4...20mA with HART@/VVO(Ex, WHG)
- P** Compact Profibus PA(Ex, WHG)
- M** Compact Profibus PA, adjustment module MINICOM (Ex,WHG)

**Overvoltage protection**

- X** without
- B** integrated in housing



**Rod length in mm**

per 100mm of 1.4571, FEP fully insulated, rod-ø 14mm

Electrode length (L):  mm (min. 100 mm, max. 3000 mm)

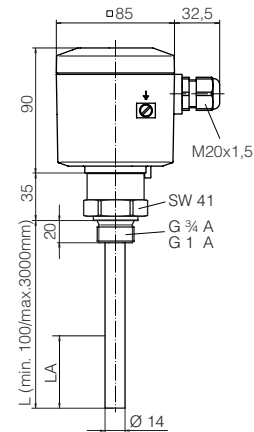
- Approvals "FM", "CSA", ship approvals applied for; Profibus PA (electronics P and M) not WHG
- **Housing "B"**: only in conjunction with electronics "P" and "M" (Profibus PA)
- **Oscillators**: Description see page 123
- Further accessory see chapter "Accessory"
- Further process connections on request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

## EK 26

### Fully insulated admittance electrode in rod version

Preferably for level detection of adhesive, conductive liquids

- easy mounting
- exact switching point even with strong buildup
- easy setup



LA = active length: 80 mm



#### Approval

- .X** without
- EX0.A** ATEX II 1G,1/2G EEx ia IIC T6 + WHG
- .M** Ship approval
- EX0.U** CSA, Division 1+2, Groups A-G

#### Process connection/Material

- TAB** Thread G 3/4 A/1.4435(316L)
- TEB** Thread 3/4 NPT/1.4435(316L)
- TBB** Thread G 1 A/1.4435 (316L)
- TFB** Thread 1 NPT/1.4435(316L)

#### Rod material/Rod-ø

- S** Steel/14mm

#### Insulation

- T** PTFE

#### Screening tubes, concentric tubes

- X** without

#### Adapter (from 100°C with temperature adapter)

- X** without
- T** for temperature up to 200°C/1.4435(316L)

#### Housing

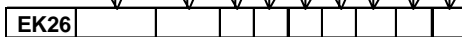
- P** Plastic PBT/IP66
- M** Aluminium plastic coated/IP66/67

#### Electronics

- X** without
- F** E18 for level detection
- G** E18Ex for level detection for Ex and WHG

#### Overvoltage protection

- X** without
- B** integrated in housing



#### Rod length in mm

per 100mm of steel, PTFE fully insulated, rod-ø 14mm

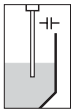
Electrode length (L):  mm (min. 180 mm, max. 3000 mm)

- **Oscillators:** Description see page 123
- Further accessory see chapter "Accessory"
- Further process connections on request

## Electrode accessory

### Version

- 3378** Gravity weight/steel 100mm for EL31/33
- 3300** Gravity weight/1.4571(316Ti) 100mm for EL31/33
- 3096** Gravity weight/steel 150mm for EL31/33
- 3317** Gravity weight/1.4571(316Ti) 150mm for EL31/33
- 1523** Gravity weight/steel 200mm for EL31/33
- 1526** Gravity weight/1.4571(316Ti) 200mm for EL31/33
- 3113** Gravity weight/steel 100mm for EL34
- 3115** Gravity weight/1.4571(316Ti) 100mm for EL34
- 3097** Gravity weight/steel 150mm for EL34
- 3114** Gravity weight/1.4571(316Ti) 150mm for EL34
- 1572** Gravity weight/steel 200mm for EL34
- 1574** Gravity weight/1.4571(316Ti) 200mm for EL34
- 1524** Pin M8x16/steel nickel-plated
- 1599** Pin M8x16/1.4571(316Ti)
- 7762** Fixing insulator/ceramic
- 20345** Strap/steel for fixing insulator
- 1528** Rope clamp/steel for 8mm cable
- 1529** Rope clamp/1.4571(316Ti) for 8mm cable
- 2857** Tension spring/1.4571(316Ti)



2

### Housing

Electrode housing of plastic (PBT) IP 66  
 Electrode housing of Aluminium plastic coated, protection IP 66/IP 67  
 Electrode housing of Aluminium, protection IP 54 with separate plastic housing IP 66  
 and 2 m triax cable (only for EL)  
 Per additional m triax cable (max. 8 m)

**Bending of the electrode  $\geq 90^\circ$**  (order with electrode in clear text)  
 in conjunction with capacitive electrodes EL 11, EK 11 as well as EL 21 with 3.2 mm PTFE insulation

### Abrasion protection

of steel for capacitive electrodes EL 31 and 33, per 1000 mm (max. 6000 mm)  
 of steel for capacitive electrodes EL 34, per 1000 mm (max. 6000 mm)

### Double extrusion

for large tensile load from 12 m electrode length for capacitive electrodes EL 34 and 53

### Overvoltage arrester

Type CB2-36 für EL or EK in conjunction with compact electronics 4 ... 20 mA article no. CB2-36.  
 External overvoltage arrester and overvoltage arrester for housing see chapter "Separating and protective instruments"

## Electrodes adapter

**To retrofit oscillators E 15, E 17, E 18 acc. to drawing ZB2410**  
 suitable for capacitive electrodes with terminal insert and oscillator 115  
 to 117

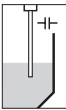
### ADAPTEREE.X

**Overvoltage arrester** Overvoltage arrester for electrostatic discharges

- Mounting accessory, welded sockets, seals and further accessory see chapter "Accessory"

### Oscillators in two-wire technology for capacitive electrodes

Type	Application	Measuring range	Measuring frequency	Price	Signal conditioning instrument
<b>E15<sup>1)</sup></b> <b>(B)</b>	Switching in general with potential separation	I: 0 ... 25 pF II: 0 ... 100 pF III: 0 ... 400 pF	400 kHz		VEGATOR VEGALOG
<b>E15 Ex<sup>1)</sup></b> <b>(C)</b>	as E15, however for use in hazardous areas acc. to CENELEC, PTB Zone 0 as well as Zone 0 and dust Ex Zone 10 as well as part of an overfill protection acc. to WHG	I: 0 ... 25 pF II: 0 ... 100 pF III: 0 ... 400 pF	400 kHz		VEGATOR Ex VEGALOG <sup>2)</sup>
<b>E17<sup>1)</sup></b> <b>(D)</b>	Continuous level measurement in general or switching with potential separation	I: 0 ... 120 pF II: 0 ... 600 pF III: 0 ... 3000 pF	40 kHz		VEGAMET VEGALOG (VEGATOR)
<b>E17 Ex<sup>1)</sup></b> <b>(E)</b>	as E17, however for use in hazardous areas acc. to CENELEC, Ex Zone 0 as well as Zone 0 and dust Ex Zone 10 as well as part of an overfill protection acc. to WHG	I: 0 ... 120 pF II: 0 ... 600 pF III: 0 ... 3000 pF	40 kHz		VEGAMET Ex VEGALOG <sup>2)</sup> (VEGATOR Ex)
<b>E18<sup>1)</sup></b> <b>(F)</b>	Continuous level measurement or level detection with potential separation acc. to the principle of the phase selective admittance processing especially for adhesive products and for use in solids with varying humidity	I: 0 ... 120 pF II: 0 ... 600 pF III: 0 ... 3000 pF	470 kHz		VEGAMET VEGALOG (VEGATOR)
<b>E18 Ex<sup>1)</sup></b> <b>(G)</b>	as E18, however for use in hazardous areas acc. to CENELEC, Ex Zone 0 as well as Zone 0 and dust Ex Zone 10 as well as part of an overfill protection acc. to WHG	I: 0 ... 120 pF II: 0 ... 600 pF III: 0 ... 3000 pF	470 kHz		VEGAMET Ex VEGALOG <sup>2)</sup> (VEGATOR Ex)
<b>CAP E32 EX</b> (4 ... 20 mA) <b>(I)</b>	Continuous level measurement acc. to the principle of the phase selective admittance processing with potential separation and current output 4...20 mA. Adjustment via local adjustment. Approved in conjunction with electrodes EK and EL in hazardous areas of Zone 0, 10 and as part of an overfill protection acc. to WHG.	0 ... 3000 pF	300 kHz		not necessary
<b>CAP E32 HEX</b> (4 ... 20 mA- HART®/VVO) <b>(H)</b>	Continuous level measurement acc. to the principle of the phase selective admittance processing with potential separation and current output 4...20 mA. Adjustment via local adjustment. HART® and VVO communication from version 2.30. Approved in conjunction with electrodes EK and EL in hazardous areas Zone 0, 10 and as part of an overfill protection acc. to WHG.	0 ... 3000 pF	300 kHz		not necessary
<b>CAP E34 PA EX</b> <b>(Profibus PA)</b> <b>(P), (M)</b>	Continuous level measurement acc. to the principle of the phase selective admittance processing with potential separation. For connection to digital communication from Profibus PA, approved for the use in hazardous areas of Zone 0	0 ... 3000 pF	300 kHz	(without MINICOM)	Segment coupler



<sup>1)</sup> adapter set for electrodes with terminal insert (see accessory, page 122)

<sup>2)</sup> in conjunction with safety barrier type 145

- Adjustment by means of PC with VEGA Visual Operating (VVO) via VEGACONNECT 3 see chapter "Signal conditioning instruments and communication"
- Further accessory see chapter "Accessory"

### VEGACAP 11

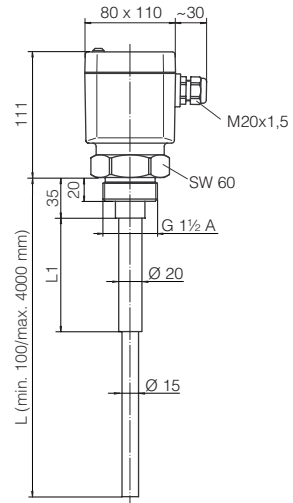
#### Capacitive compact level switch with partly insulated rod electrode

For use as overflow or dry run protection system in non-conductive liquids and solids

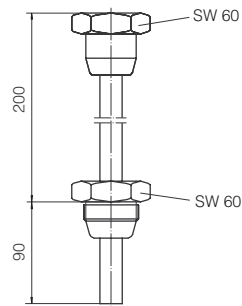
- easy mounting
- high functionality
- rugged and maintenance-free
- electrode can be shortened



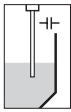
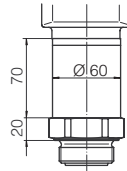
**SPEED** Delivery time: up to 1900 mm length



Temperature adapter  
St, VA



Temperature adapter  
PA





**Approval**

- .X without
- EXS.X ATEX II 1/2D IP65T
- .A Overfill protection acc. to WHG

**Process connection/Material**

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

**Material rod**

- V** 1.4571(316Ti)
- S** Steel

**Material insulation**

- T** PTFE
- B** PP

**Screening tubes, concentric tubes/Material/Closing cone**

- X** without
- D** Screening tube/steel/PP
- E** Screening tube/steel/PTFE
- F** Screening tube/1.4571(316Ti)/PP
- G** Screening tube/1.4571(316Ti)/PTFE

**Adapter (from 100°C with temperature adapter)**

- X** without
- 1** Temperature up to 200°C/galvanized steel
- 2** Temperature up to 200°C/1.4571(316Ti)
- 3** Temperature up to 150°C/PA

**Housing**

- K** Plastic PBT/IP66
- T** Plastic PBT/IP66 with test switch

**Electronics**

- C** Contactless electronic switch 20...250VAC/DC
- R** Relay output 20...72VDC/20...250VAC(3A)
- T** Floating transistor (NPN/PNP) 10...55VDC



**Total length L in mm**

- per 100 mm of steel
- per 100 mm of 1.4571

**Tube length**

- per 100 mm of steel
- per 100 mm of 1.4571
- per 100 mm of 1.4571

Electrode length (L):  mm (min. 100 mm, max. 4000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- **Electronics "C" and "T"**: not in conjunction with approval "EXS.X"
- **Insulation "B"**: not in conjunction with adapters
- Further process connections on request

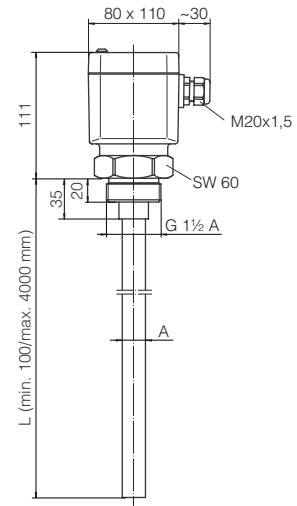


**VEGACAP 21**

**Capacitive compact level switch with fully insulated rod electrode**

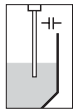
For use as overflow or dry run protection system, preferably in liquids

- easy mounting
- high functionality
- rugged and maintenance-free



Dimensions temperature adapters see page 124

Insulation		A outer-ø
PE	2.0 mm	20 mm
PTFE	2.0 mm	20 mm
PTFE	3.2 mm	16 mm
PFA	2.0 mm	20 mm



 **SPEED** Lieferzeit: up to 1900 mm length

**Approval**

- .X without
- .A Overfill protection acc. to WHG

**Process connection/Material**

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- PCV** Flange DN50PN40/StSt PTFE-plated
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

**Material rod**

- V** 1.4571(316Ti)
- S** Steel

**Material insulation**

- E** PE
- D** PTFE 2.0 mm insulation thickness
- T** PTFE 3.2 mm insulation thickness
- F** PFA

**Screening tubes,concentric tubes/Material/Closing cone**

- X** without
- D** Screening tube/steel/PP
- E** Screening tube/steel/PTFE
- F** Screening tube/1.4571(316Ti)/PP
- G** Screening tube/1.4571(316Ti)/PTFE

**Adapter (from 100°C with temperature adapter)**

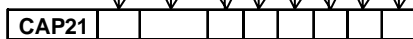
- X** without
- 1** Temperature up to 200°C/galvanized steel
- 2** Temperature up to 200°C/1.4571(316Ti)
- 3** Temperature up to 150°C/PA

**Housing**

- K** Plastic PBT/IP66
- T** Plastic PBT/IP66 with test switch

**Electronics**

- C** Contactless electronic switch 20...250VAC/DC
- R** Relay output 20...72VDC/20...250VAC(3A)
- T** Floating transistor (NPN/PNP) 10...55VDC



**Total length L in mm**

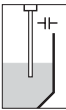
- per 100 mm of steel, PE fully insulated
- per 100 mm of 1.4571, PE fully insulated
- per 100 mm of steel, PTFE fully insulated
- per 100 mm of 1.4571, PTFE fully insulated
- per 100 mm of steel, PFA fully insulated
- per 100 mm of 1.4571, PFA fully insulated

**Tube length**

- per 100 mm of steel
- per 100 mm of 1.4571

Electrode length (L):  mm (min. 100 mm, max. 4000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- **Insulation "B"**: not in conjunction with adapters
- Further process connections on request

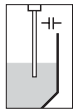
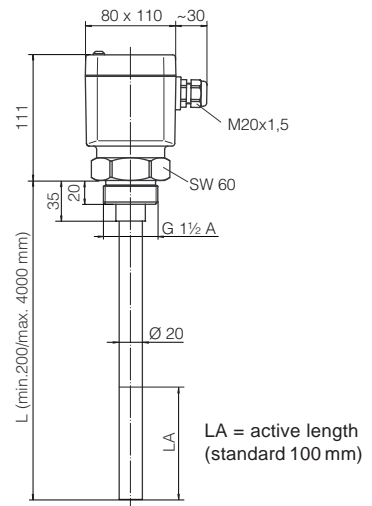


**VEGACAP 26**

**Capacitive compact level switch with fully insulated rod electrode for very adhesive products**

For use as overflow and dry run protection system preferably in adhesive, conductive liquids

- exact switching point also with strong buildup
- easy setup
- rugged and maintenance-free
- easy mounting



**Approval**

.X without

.A Overfill protection acc. to WHG

**Process connection/Material**

**GBA** Thread G1½A/Aluminium

**GBS** Thread G1½A/steel

**GBV** Thread G1½A/1.4571(316Ti)

**GAV** Thread G1A/1.4571(316Ti)

**NBS** Thread 1½NPT/steel

**NBV** Thread 1½NPT/StSt

**TBV** Tri-Clamp 1½"/StSt

**TCV** Tri-Clamp 2"/StSt

**RCV** Bolting DN50/StSt

**FCV** Flange DN50PN40 Form C/StSt

**PCV** Flange DN50PN40/StSt PTFE-plated

**FDV** Flange DN80PN40 Form C/StSt

**AGV** Flange 2"150lb ANSI/StSt

**AHV** Flange 3"150lb ANSI/StSt

**Material rod**

**V** 1.4571(316Ti)

**S** Steel

**Material insulation**

**T** PTFE

**F** PFA

**Screening tubes,concentric tubes**

**X** without

**Adapter (from 100°C with temperature adapter)**

**X** without

**1** Temperature up to 200°C/galvanized steel

**2** Temperature up to 200°C/1.4571(316Ti)

**Housing**

**K** Plastic PBT/IP66

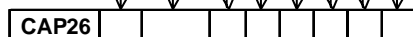
**T** Plastic PBT/IP66 with test switch

**Electronics**

**C** Contactless electronic switch 20...250VAC/DC

**R** Relay output 20...72VDC/20...250VAC(3A)

**T** Floating transistor (NPN/PNP) 10...55VDC



**Total length L in mm**

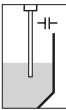
- per 100 mm of steel, PTFE fully insulated
- per 100 mm of 1.4571, PTFE fully insulated
- per 100 mm of steel, PFA fully insulated
- per 100 mm of 1.4571, PFA fully insulated

**Tube length**

- per 100 mm of steel
- per 100 mm of 1.4571

Electrode length (L):  mm (min. 200 mm, max. 4000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- Further process connections on request



**VEGACAP 27**

**Adjustment-free, capacitive compact level switch with fully insulated rod electrode for very adhesive products**

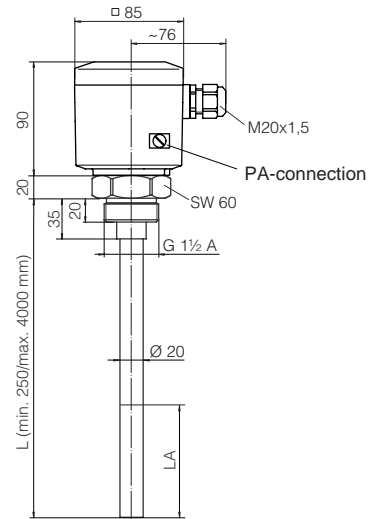
For use as overflow or dry run protection system in adhesive, conductive liquids with a dielectric constant from 1.5

- exact switching point also with strong buildup
- setup without adjustment with product
- rugged and maintenance-free
- easy mounting

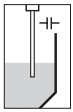
Dimensions temperature adapters see page 124



**SPEED** Delivery time: up to 1900 mm length



LA = active length 150 mm



**Approval**

- .X without
- .A Overfill protection acc. to WHG

**Process connection/Material**

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- GAV** Thread G1A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- PCV** Flange DN50PN40/StSt PTFE-plated

**Material rod/Insulation**

- ST** Steel/PTFE
- SF** Steel/PFA

**Screening tube against condensation**

- X without

**Adapter (from 100°C with temperature adapter)**

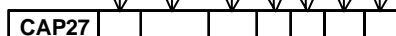
- X without
- 1 Temperature up to 200°C/galvanized steel
- 2 Temperature up to 200°C/1.4571(316Ti)

**Housing**

- P** Plastic PBT/IP66/67
- M** Aluminium plastic coated/IP66/67

**Electronics**

- D** Double relay (DPDT) 20...72VDC/20...250VAC(5A)

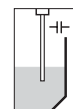


**Total length L in mm**

- per 100 mm of steel, PTFE fully insulated
- per 100 mm of 1.4571, PTFE fully insulated
- per 100 mm of steel, PFA fully insulated
- per 100 mm of 1.4571, PFA fully insulated

Electrode length (L):  mm (min. 250 mm, max. 4000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- Further process connections on request



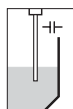
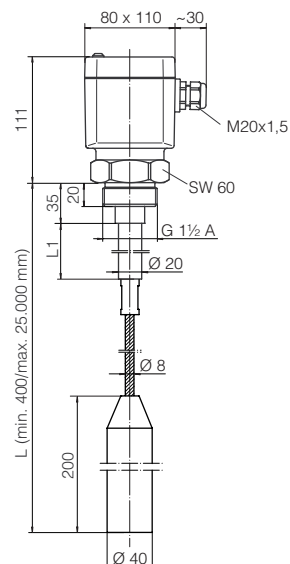
### VEGACAP 31

#### Capacitive compact level switch with partly insulated cable electrode

For use as overflow and dry run protection system in non-conductive liquids and solids

- easy mounting
- high functionality
- rugged and maintenance-free

Dimensions temperature adapters see page 124





**Approval**

- .X without
- EXS.X** ATEX II 1/2D IP65T
- .A Overfill protection acc. to WHG

**Process connection/Material**

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- NBS** Thread 1½NPT/steel
- NBV** Thread 1½NPT/StSt
- FCV** Flange DN50PN40 Form C/StSt
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

**Material cable**

- V** 1.4571(316Ti)
- S** Steel

**Material insulation**

- T** PTFE
- B** PP

**Screening tubes,concentric tubes/Material/Closing cone**

- X** without
- D** Screening tube/steel/PP
- E** Screening tube/steel/PTFE
- F** Screening tube/1.4571(316Ti)/PP
- G** Screening tube/1.4571(316Ti)/PTFE

**Adapter (from 100°C with temperature adapter)**

- X** without
- 1** Temperature up to 200°C/galvanized steel
- 2** Temperature up to 200°C/1.4571(316Ti)
- 3** Temperature up to 150°C/PA

**Gravity weight/fixing insulator**

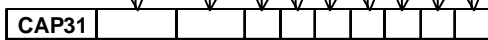
- S** Gravity weight 200mm/steel
- V** Gravity weight 200mm/1.4571(316Ti)
- E** Fixing insulator/ceramic and 1.4571(316Ti)
- T** Fixing insulator/ceramic and steel

**Housing**

- K** Plastic PBT/IP66
- T** Plastic PBT/IP66 with test switch

**Oscillator mounted into electrode**

- C** Contactless electronic switch 20...250VAC/DC
- R** Relay output 20...72VDC/20...250VAC(3A)
- T** Floating transistor (NPN/PNP) 10...55VDC



**Total length L in mm**

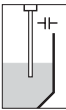
- per 1000 mm of steel
- per 1000 mm of 1.4571

**Tube length**

- per 100 mm of steel
- per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- **Electronics "C" and "T"**: not in conjunction with approval "EXS.X"
- **Insulation "B"**: not in conjunction with adapters
- Further process connections on request



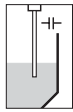
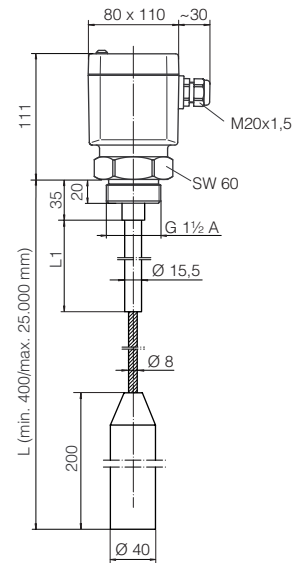
### VEGACAP 33

#### Capacitive compact level switch with partly insulated cable electrode

For use as overflow or dry run protection system in non-conductive liquids and solids

- individually selectable insulation length
- easy mounting
- insensitive to condensation
- rugged and maintenance-free
- electrode can be shortened

Dimensions temperature adapters see page 124



**Approval**

.X without

.A Overfill protection acc. to WHG

**Process connection/Material**

**GBA** Thread G1½A/Aluminium

**GBS** Thread G1½A/steel

**GBV** Thread G1½A/1.4571(316Ti)

**NBS** Thread 1½NPT/steel

**NBV** Thread 1½NPT/StSt

**TCV** Tri-Clamp 2"/StSt

**FCV** Flange DN50PN40 Form C/StSt

**FDV** Flange DN80PN40 Form C/StSt

**AGV** Flange 2"150lb ANSI/StSt

**AHV** Flange 3"150lb ANSI/StSt

**Material cable**

**V** 1.4571(316Ti)

**S** Steel

**Material insulation**

**T** PTFE

**Screening tubes,concentric tubes/Material/Closing cone**

**X** without

**E** Screening tube/steel/PTFE

**G** Screening tube/1.4571(316Ti)/PTFE

**Adapter (from 100°C with temperature adapter)**

**X** without

**1** Temperature up to 200°C/galvanized steel

**2** Temperature up to 200°C/1.4571(316Ti)

**3** Temperature up to 150°C/PA

**Gravity weight**

**S** Gravity weight 200mm/steel

**V** Gravity weight 200mm/1.4571(316Ti)

**Housing**

**K** Plastic PBT/IP66

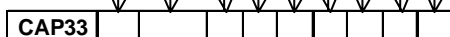
**T** Plastic PBT/IP66 with test switch

**Oscillator mounted into electrode**

**C** Contactless electronic switch 20...250VAC/DC

**R** Relay output 20...72VDC/20...250VAC(3A)

**T** Floating transistor (NPN/PNP) 10...55VDC



**Total length L in mm**

per 1000 mm of steel

per 1000 mm of 1.4571

**Tube length**

per 100 mm of steel

per 100 mm of 1.4571

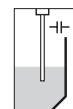
**Insulation length in mm**

per 100 mm of PTFE

Electrode length (L):  mm (min. 400 mm, max. 25000 mm)

Insulation length (L<sub>i</sub>):  mm

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- Further process connections on request



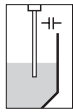
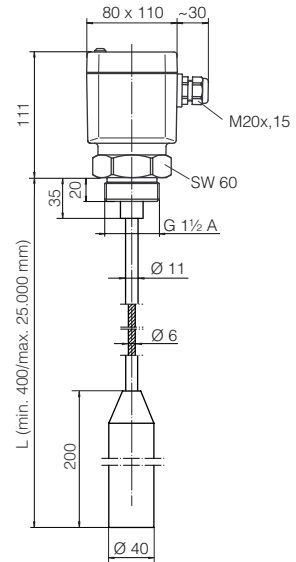
**VEGACAP 34**

**Capacitive compact level switch with PE/PA12 partly insulated cable electrode**

For use as overflow or dry run protection system in solids

- fully insulated cable with rugged, bare gravity weight
- easy mounting
- insensitive to condensation
- electrode can be shortened

Process temperature : -40...80°C



**Approval**

- .X without
- .A Overfill protection acc. to WHG

**Process connection/Material**

- GBA** Thread G1½A/Aluminium
- GBS** Thread G1½A/steel
- GBV** Thread G1½A/1.4571(316Ti)
- NBV** Thread 1½NPT/StSt
- TBV** Tri-Clamp 1½"/StSt
- TCV** Tri-Clamp 2"/StSt
- RCV** Bolting DN50/StSt
- FCV** Flange DN50PN40 Form C/StSt
- FDV** Flange DN80PN40 Form C/StSt
- AGV** Flange 2"150lb ANSI/StSt
- AHV** Flange 3"150lb ANSI/StSt

**Material cable**

- S** Steel

**Material insulation**

- E** PE/PA 12

**Screening tubes, concentric tubes/Material/Closing cone**

- X** without
- D** Screening tube/steel/PP
- F** Screening tube/1.4571(316Ti)/PP

**Adapter**

- X** without

**Gravity weight**

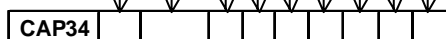
- S** Gravity weight 200mm/steel
- V** Gravity weight 200mm/1.4571(316Ti)
- A** Gravity weight 200mm/Aluminium

**Housing**

- K** Plastic PBT/IP66
- T** Plastic PBT/IP66 with test switch

**Electronics**

- C** Contactless electronic switch 20...250VAC/DC
- R** Relay output 20...72VDC/20...250VAC(3A)
- T** Floating transistor (NPN/PNP) 10...55VDC



**Total length L in mm**

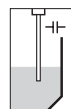
per 1000 mm of steel, PE/PA12 fully insulated

**Tube length**

per 100 mm of steel  
per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 25000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- Further process connections on request



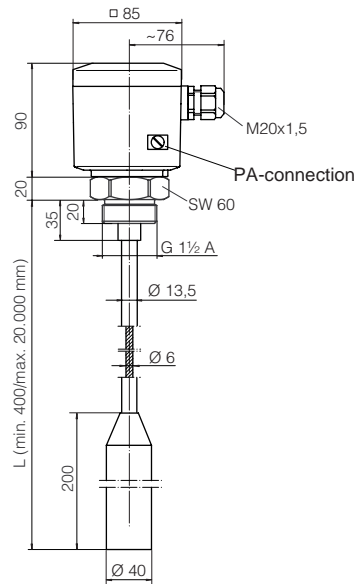
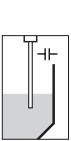
### VEGACAP 35

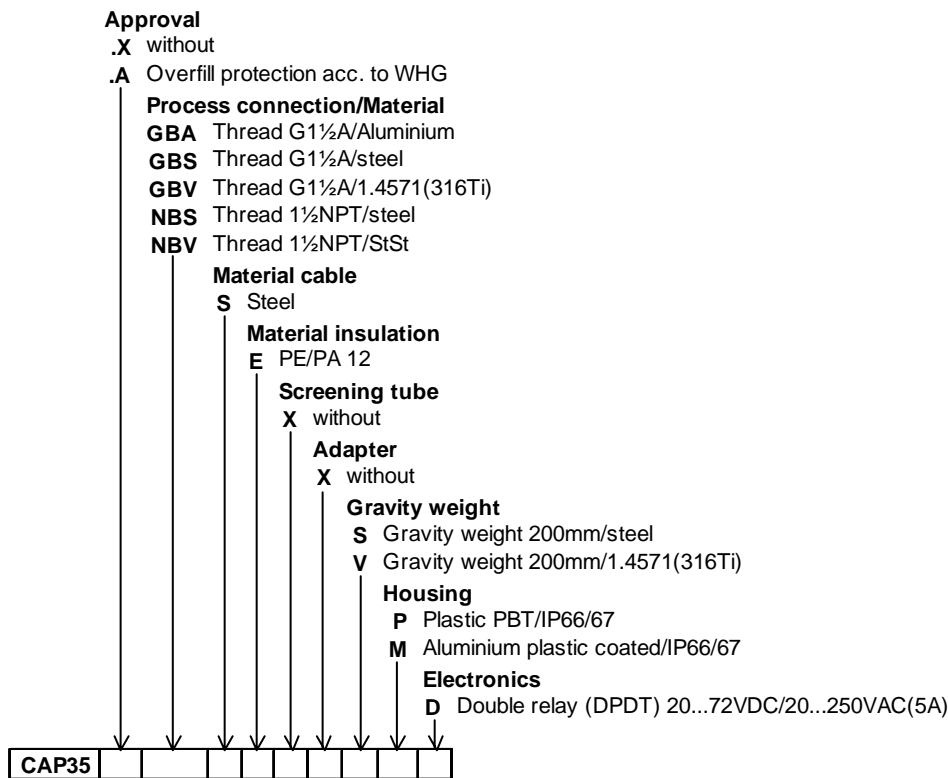
**Adjustment-free, capacitive compact level switch with PE/PA12 partly insulated cable electrode**

Preferably for universal use as overflow protection in solids with dielectric constant from 1.5

- fully insulated cable with rugged, bare gravity weight
- exact switching point also with strong buildup or condensation
- setup without adjustment with product
- easy mounting
- electrode can be shortened

Process temperature : -40...80°C





**Cable length in mm**

per 1000 mm of steel, PE/PA12 fully insulated

Electrode length (L):  mm (min. 400 mm, max. 20000 mm)

- **Process connection "GBA"**: not in conjunction with approval "A" (WHG)
- Further process connections on request

**VEGACAP 60**

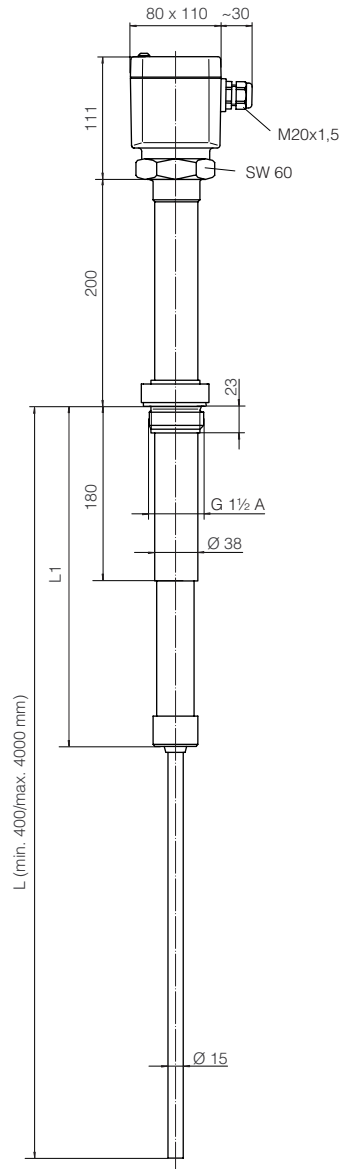
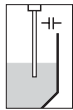
**Capacitive high temperature compact level switch with ceramic partly insulated rod electrode**

For use as overflow or dry run protection system in solids

- easy mounting
- high functionality
- rugged and maintenance-free
- electrode can be shortened

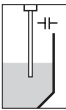
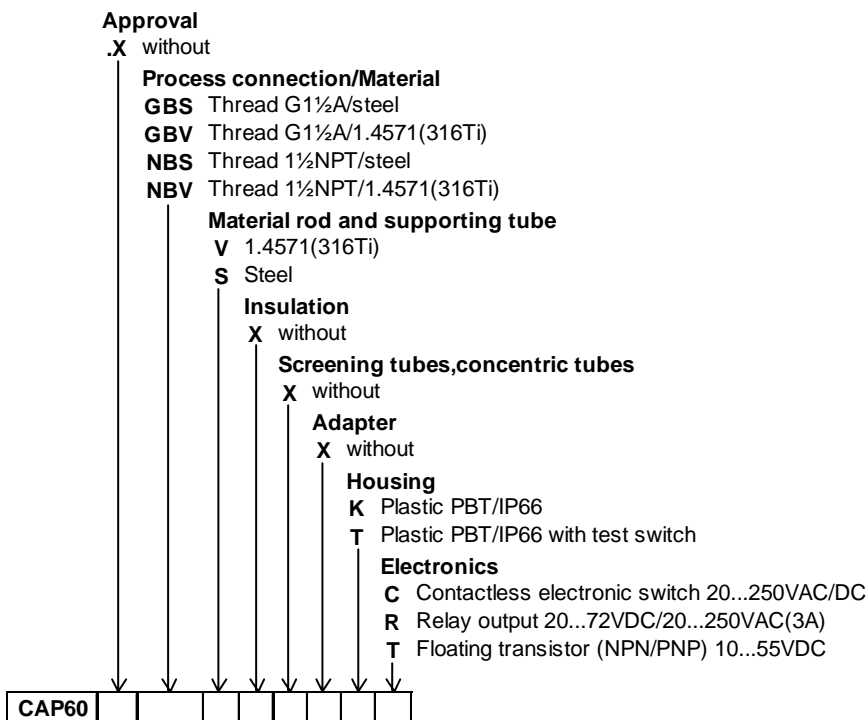
Process temperature : -50...300°C (with separate housing up to 400°C)

Process pressure : -1...16 bar (-100...1600 kPa)



L1 supporting tube (300)





**Total length L in mm**

per 100 mm of steel  
 per 100 mm of 1.4571

**Supporting tube length mm**

per 100 mm of steel  
 per 100 mm of 1.4571

Electrode length (L):  mm (min. 400 mm, max. 4000 mm)

Supporting tube length(L1):  mm (min. 200 mm)

- Further process connections on request

**VEGACAP 61**

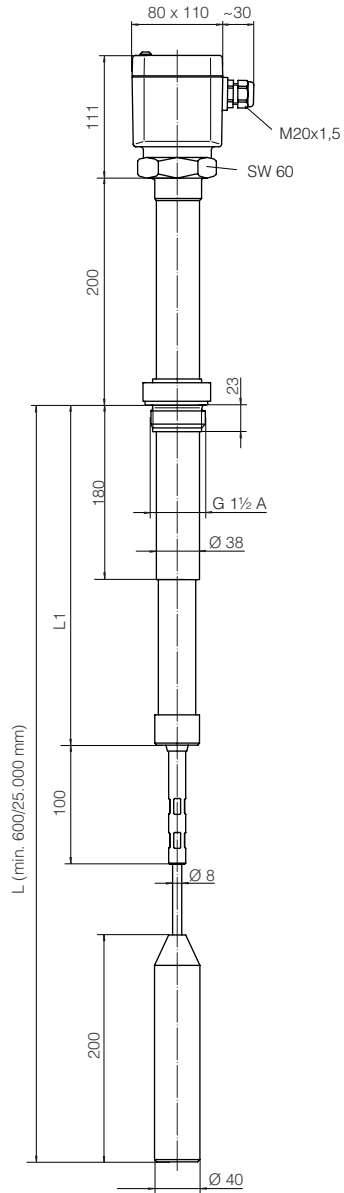
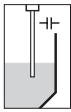
**Capacitive high temperature compact level switch with ceramic partly insulated cable electrode**

For use as overflow or dry run protection system in solids

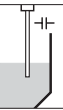
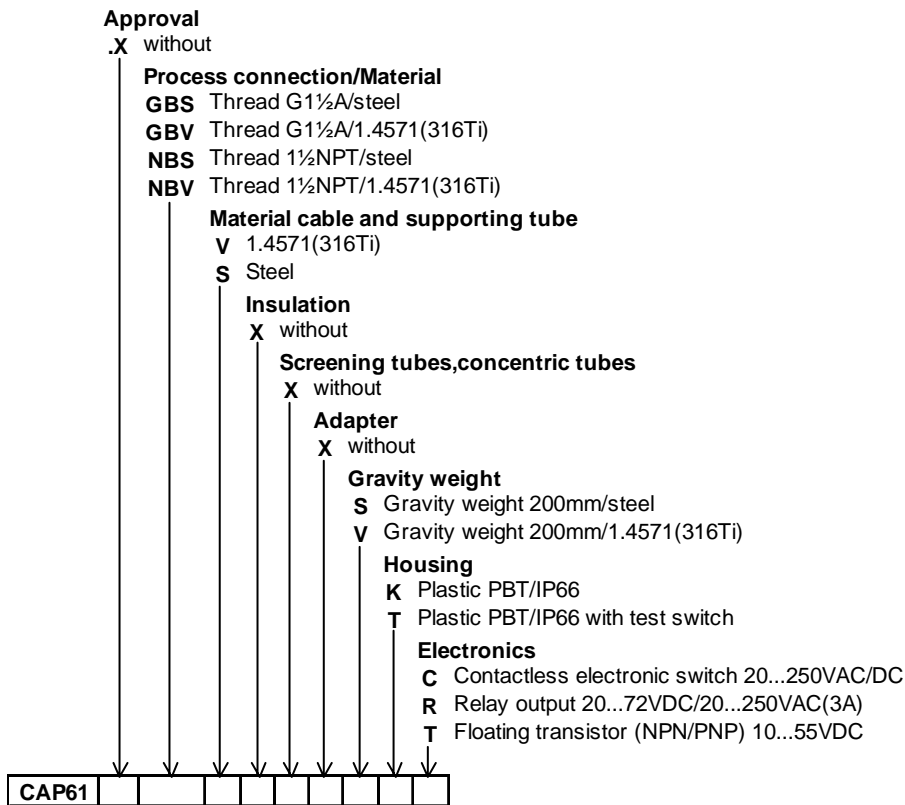
- easy mounting
- high functionality
- rugged and maintenance-free
- electrode can be shortened

Process temperature : -50...300°C (with separate housing up to 400°C)

Process pressure : -1...16 bar (-100...1600 kPa)



L1 supporting tube (300)



**Total length L in mm**

per 100 mm of steel  
 per 100 mm of 1.4571

**Supporting tube length mm**

per 100 mm of steel  
 per 100 mm of 1.4571

Electrode length (L):  mm (min. 600 mm, max. 25000 mm)

Supporting tube length (L1):  mm (min. 200 mm)

- Further process connections on request

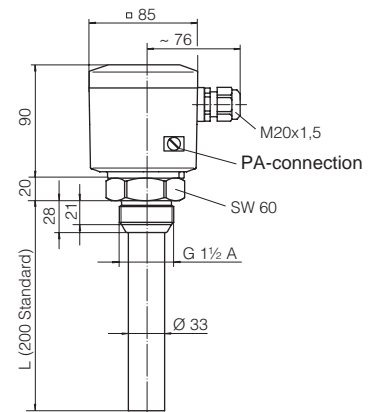
## VEGACAP 98

**Adjustment-free, capacitive compact level switch for very adhesive products, completely made of PP**

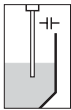
For use as overfill or dry run protection system in products with a dielectric constant from 1.5

- exact switching point also with strong buildup
- setup without adjustment with product
- easy mounting
- very inexpensive level detection

Process temperature : -40...80°C



90 mm active length



### Approval

- .X without
- .A Overfill protection acc. to WHG

### Housing

- P Plastic PBT/IP66/67
- M Aluminium plastic coated/IP66/67

### Length

- X Standard (200mm)
- Y Special length

### Electronics

- D Double relay (DPDT) 20...72VDC/20...250VAC(5A)

### Application area

- S Solid
- F Liquid



Electrode length in mm  
per 100 mm

Electrode length (L):  mm (min. 150 mm, max. 1500 mm), others on request

- Length "Y": Delivery time more than 5 working days